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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/877,217	06/11/2001	Ikuya Tsurukawa	206470US-2	9559

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EXAMINER	
ELKASSABGI, HEBA	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 06/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	09/877,217	TSURUKAWA ET AL.	
	Examiner	Art Unit	
	Heba Elkassabgi	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *0611/01* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

The drawing objections in as stated in the previous office action are over come by applicant's response.

Claim Objections

Claim 13 is objected to because of the following informalities: The means for suppressing noise is recommended to be changed to noise suppression element. Appropriate correction is required.

Claim 14 is objected to because of the following informalities: The means for supporting the rotation and the supporting means is recommended to be changed to support base. Appropriate correction is required.

Claim 14 is objected to because of the following informalities: The means for connecting externally should be changed to external terminals. Appropriate correction is required.

Claim 16 is objected to because of the following informalities: The means for supporting and supporting means is recommended to be changed to support base. Appropriate correction is required.

Claim 16 is objected to because of the following informalities: The supply means is recommended to be changed to electrode brush. Appropriate correction is required.

Claim 17 is objected to because of the following informalities: The means for suppressing noise and suppressing means is recommended to be changed to noise suppression elements. Appropriate correction is required.

Claim 18 is objected to because of the following informalities: The means for supplying electric power is recommended to be changed to electrode brushes. Appropriate correction is required.

Claim 18 objected to because of the following informalities: The supply means is recommended to be changed to electrode brush. Appropriate correction is required.

Claim 19 is objected to because of the following informalities: The supplying means is recommended to be changed to electrode brushes. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 12 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art, as to what the means for applying a magnetic field needs to be clearly defined as to what that means is.

Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art, as to what the supply means needs to be clearly defined as to what that means is.

Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art, as to what the means for detecting a signal and the detecting means needs to be clearly defined as to what that means is.

Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art, as to what the first and second connecting means and the detecting means need to define as to what those means are.

Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art, as to what the means for applying a magnetic field needs to be clearly defined as to what that means is.

Claim 19 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art, as to what the means for detecting a signal and detecting means needs to be clearly defined as to what that means is.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3,10,12,18,20,23,26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Aoki (U.S. Patent 4037125).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric

power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plan conductive layer.

Aoki illustrates in figure 11a flat surface printed resistor board (14) (electrical parts mounting baseboard) that perpendicularly intersects and is fixed on to a rotating shaft (9). In which the commutator (12 and 13) having a contact electrode part (12) with a plane conductive part (13) are connected to the rotor coils (11) with that the contact electrode part (12) formed on one side of the surface of the printed resistor board (14), in order to provide a flat small sized DC motor.

It would have been obvious to one of ordinary skill in the a art to combine the DC motor structure of APA with Aoki's commutator in order to form a flat smaller sized DC motor.

In regards to claims 20- 23 the examiner notes that the method of making are inherently included in the apparatus disclosed above.

Claims 2,8,13,17,21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Aoki (U.S. Patent 4037125) and Suzuki (U.S. Patent 5119466).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with at plain conductive layer and a noise-suppressing element.

Aoki illustrates in figure 11a flat surface printed resistor board (14) (electrical parts mounting baseboard) that perpendicularly intersects and is fixed on to a rotating shaft (9). In which the commutator (12 and 13) having a contact electrode part (12) with a plane conductive part (13) are connected to the rotor coils (11) with that the contact electrode part (12) formed on one side of the surface of the printed resistor board (14), in order to provide a flat small sized DC motor.

Suzuki illustrates in Figure 3 a DC motor having a noise-suppressing element (lower case member which performs a function of an electromagnetic shield)(34) is provided on the electrical parts mounting baseboard (printed circuit board)(40, in order to suppress noise produced in the direct current motor.

It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Aoki's commutator in order to form a flat smaller sized DC motor and Suzuki's noise-suppressing element in order to suppress noise produced in the direct current motor.

In regards to claim 7, it would have been obvious to one having ordinary skill in the art at the time the invention was made to decide the angular position of the crushes in relation to the commutator, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In regards to the method of making in claims 21and 24 are inherently included in the apparatus disclosed above.

Claims 2,8,13,17,21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Aoki (U.S. Patent 4037125) and Ohtake et al. (U.S. Patent 5598045).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with at plain conductive layer and the electrical parts mounting baseboard being fixed to the shaft.

Aoki illustrates in figure 11a flat surface printed resistor board (14) (electrical parts mounting baseboard) that perpendicularly intersects and is fixed on to a rotating shaft (9). In which the commutator (12 and 13) having a contact electrode part (12) with a plane conductive part (13) are connected to the rotor coils (11) with that the contact electrode part (12) formed on one side of the surface of the printed resistor board (14), in order to provide a flat small sized DC motor.

Ohtake et al. discloses in Figure 1 a support base (case cap) (6) having to support the rotation shaft (12) of the rotor (5). Wherein, the electrode brushes (45), fixed to the support base (6) includes external terminals (pig-tail wires) (14), in order to provide external connection to the DC motor.

It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Aoki's commutator with a plane conductive layer and the contact electrode part in order to form a flat smaller sized DC motor and Ohtake et al.'s structure of the support base with the brushes and terminals in order to provide an external connection to the DC motor.

Claims 2,8,13,17,21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Aoki (U.S. Patent 4037125) and Fassel et al. (U.S. Patent 4514670).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plain conductive layer and rotational brush in contact with the electrical part.

Aoki illustrates in figure 11a flat surface printed resistor board (14) (electrical parts mounting baseboard) that perpendicularly intersects and is fixed on to a rotating shaft (9). In which the commutator (12 and 13) having a contact electrode part (12) with a plane conductive part (13) are connected to the rotor coils (11) with that the contact electrode part (12) formed on one side of the surface of the printed resistor board (14), in order to provide a flat small sized DC motor.

Fassel et al. discloses in Figure 1 a DC motor (2) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor)(18) of the commutator and configured to detect a signal on the commutator indicative of an operation of the DC motor and that at least one sliding contact position of the detecting means are arranged at a different distance that in order to have a cycling time or period of the undulation to be reversibly proportional to the speed of the motor.

It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Aoki's commutator with a plane conductive layer and the contact electrode part in order to form a flat smaller sized DC motor and Fassel et al. brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportional to the speed of the motor.

In regards to the method of making in claims 22 and 25 it is inherently included in the apparatus disclosed above.

Claims 2,8,13,17,21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Aoki (U.S. Patent 4037125) and Suzuki (U.S. Patent 5119466) and Fassel et al. (U. S. Patent 4514670).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plain conductive layer, a noise-suppressing element and rotational brush in contact with the electrical part.

Aoki illustrates in figure 11a flat surface printed resistor board (14) (electrical parts mounting baseboard) that perpendicularly intersects and is fixed on to a rotating shaft (9). In which the commutator (12 and 13) having a contact electrode part (12) with a plane conductive part (13) are connected to the rotor coils (11) with that the contact electrode part (12) formed on one side of the surface of the printed resistor board (14), in order to provide a flat small sized DC motor.

Suzuki illustrates in Figure 3 a DC motor having a noise-suppressing element (lower case member which performs a function of an electromagnetic shield)(34) is provided on the electrical parts mounting baseboard (printed circuit board)(40, in order to suppress noise produced in the direct current motor.

Fassel et al. discloses in Figure 1 a DC motor (2) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor)(18) of the commutator and configured to detect a signal on the commutator indicative of an operation of the DC motor and that at least one sliding contact position of the detecting means are arranged at a different distance that in order to have a cycling time or period of the undulation to be reversibly proportional to the speed of the motor.

It would have been obvious to one of ordinary skill in the art to combine the DC motor structure of APA with Aoki's commutator in order to form a flat smaller sized DC motor and Suzuki's noise-suppressing element in order to suppress noise produced in the direct current motor and Fassel et al. brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportional to the speed of the motor.

Claim 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Prior Art (which will be referred to as APA) and further in view of Aoki (U.S. Patent 4037125) and Ohtake et al. (U.S. Patent 5598045) and Fassel et al. (U.S. Patent 4514670).

APA discloses a DC motor comprising a rotor with a rotation shaft, rotor coils, a stator configured to apply a magnetic filed to the rotor via magnetic poles of the stator to the opposing magnetic poles of the rotor. In addition, APA discloses a pair electrode brushes in sliding contact with the contact electrode part of the commutator at respective sliding contact positions of a different distance from an axis of the rotation and is configured to supply electric power to the rotor coils through the commutator. Wherein the respective sliding contact positions of the electrode brushes with the contact electrode part are shifted in the radial direction. Furthermore the electrode brushes are split into plural separate portions, wherein the sliding contacts of the separate portions with the contact electrode part of the commutator causes a phase difference due to a shift of the rotation angle positions of the sliding contacts of the separate portions relative to the contact electrode part. Further including, electrode brushes that are configured to contact the commutator at representative first and second rotation angle positions 180 degrees apart on the commutator at a third rotation position such that an angle formed between one rotation detecting brush. However, APA does not disclose an electrical parts mounting baseboard in contact with the rotational shaft and a commutator including a contact electrode part formed with a plain conductive layer and rotational brush in contact with the electrical part, and a noise-suppressing element.

Aoki illustrates in figure 11a flat surface printed resistor board (14) (electrical parts mounting baseboard) that perpendicularly intersects and is fixed on to a rotating shaft (9). In which the commutator (12 and 13) having a contact electrode part (12) with a plane conductive part (13) are connected to the rotor coils (11) with that the contact electrode part (12) formed on one side of the surface of the printed resistor board (14), in order to provide a flat small sized DC motor.

Ohtake et al. discloses in Figure 1 a support base (case cap) (6) having to support the rotation shaft (12) of the rotor (5). Wherein, the electrode brushes (45), fixed to the support base (6) includes external terminals (pig-tail wires) (14), in order to provide external connection to the DC motor.

Fassel et al. discloses in Figure 1 a DC motor (2) in which at least one rotation detecting brush (not shown) is in sliding contact with the contact electrode part (sensing resistor)(18) of the commutator and configured to detect a signal on the commutator indicative of an operation of the DC motor and that at least one sliding contact position of the detecting means are arranged at a different distance that in order to have a cycling time or period of the undulation to be reversibly proportional to the speed of the motor.

It would have been obvious tone of ordinary skill in the art to combine the DC motor structure of APA with Aoki's commutator in order to form a flat smaller sized DC motor and Ohtake et al.'s structure of the support base with the brushes and terminals in order to provide an external connection to the DC motor and Fasssel's et al'. brush in sliding contact with the contact electrode part in order to have a cycle time or period of the undulation to be reversibly proportional to the speed of the motor.

Response to Arguments

Applicant's arguments are moot in regards of new grounds of rejection above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30 – 3:30), and every other Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached at (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HYE
June 6, 2003

NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800